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Report No.: 17880

IMPLEMENTATION COMPLETION REPORT

KOREA

VOCATIONAL SCHOOLS DEVELOPMENT PROJECT

(Loan No. 3469-KO)

May 15, 1998

Education Sector Unit
East Asia and Pacific Regional Office

CURRENCY EQUIVALENTS

Currency Unit	=	Korean Won (W)
At appraisal	=	US$1 = W 730
At completion	=	US$1 = W 1707

WEIGHTS AND MEASURES

Metric System

FISCAL YEAR

January 1 - December 31

ACADEMIC YEAR

March - February

ABBREVIATIONS AND ACRONYMS

AHS	Agricultural High School
GOK	Government of Korea
ICB	International Competitive Bidding
ICR	Implementation Completion Report
JPC	Joint Practice Center
MOE	Ministry of Education
OE	Office of Education
O&M	Operations and maintenance
OSROK	Office of Supply, Republic of Korea (name at appraisal)
SAROK	Supply Administration, Republic of Korea (name at completion)
VHS	Vocational High School
VTI	Vocational Training Institute

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PREFACE

This is the Implementation Completion Report (ICR) for the Vocational Schools Development Project in Korea, for which Loan 3469-KO in the amount of US$30 million equivalent was approved on May 12, 1992, signed on June 19, 1992 and made effective on September 9, 1992.

The loan was closed on schedule on December 31, 1997. Final disbursement took place on December 3, 1997, and a balance of US$963,372.69 was canceled.

The ICR was prepared by Mr. Robert McGough, assisted by Mss. Carol Ball and Omporn Regel. The ICR was reviewed by Mr. Alan Ruby, Manager, EASED and Mr. Sri-Ram Aiyer, Country Director, EACKO. The Borrower's contribution to the ICR is included in Annex B of the ICR.

Preparation of this ICR was begun during the Bank's last supervision/completion mission in September 28 - October 18, 1997. The mission visited the Ministry of Finance and Economy, Ministry of Education (MOE), Supply Administration, Republic of Korea (SAROK), and two technical high schools (Yongsan Technical High School and Seoul Information Industrial High School). This information in this report is based on materials in the Project Implementation Index File, Divisional Black Books, a submission of requested data from the Borrower dated January 26, 1998, and information collected during the completion mission. The Borrower contributed to the preparation of the ICR by: (a) providing additional data upon request; and (b) submitting its own evaluation report of the project (Annex B).

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EVALUATION SUMMARY

Objectives

(i) The objectives of the project were fully achieved. The project: (a) upgraded the skill training and provided equipment in selected vocational high schools (VHSs) to ensure the continued employability of VHS graduates and to allow more effective adjustments in training to support the technologies in the workplace; and (b) strengthened the linkages between schools and employers, thus allowing for more effective planning, improved staffing arrangements in the schools and more efficient operation of joint practice facilities. The impact of the project was positive in all project institutions (para. 6).

Implementation Experience

(ii) Overall, the implementation of the project was highly satisfactory. The project was closed on schedule and with no cost overruns. Counterpart funds were adequately provided throughout the life of the project. The actual disbursements were US$29,036,627.31 million or about 96.8% of the loan amount. Over 95% of the specialized equipment was procured under international competitive bidding (ICB) procedures. Disbursements conformed to all Bank's procedures including the use of Special Accounts. During the initial stage of implementation, there were some delays in: (a) the commencement of two studies; and (b) disbursements. However, both of these concerns were quickly and effectively addressed and did not become significant. These early delays did not adversely affect the completion schedule or the outputs of the project. There are no overdue audit reports, and there was full compliance with all other covenants of the Loan Agreement.

Results

(iii) Schools are now better equipped with new and more specialized equipment. The provision rate of experimental and practical training equipment in the whole VHS system has increased from 45.7% in 1993 to 59.9% in 1997, of which about 3.2% may be attributed to inputs from the Loan. As a result, students are now more able to complete the experimental activities and skills training required for employment in the labor market with its rapidly changing technologies. The average employment rate of the graduates from the participating VHSs is now about 85%, and in some schools it has reached almost 100%.

(iv) With major inputs of project-financed equipment, the Joint Practice Centers (JPCs) have been able to increase annually their equipment utilization rate. This was an important achievement as it resulted in better program efficiency (internal). The current average equipment utilization rate is estimated to be about 67% as compared to 1996 (58%) and

1993 (less than 40%). The JPCs have also seen a steady increase in enrollments. When compared to the base year (1993), the enrollments have increased by 3% in 1994, 33% in 1995, and 64% in 1996. The total student hours allotted for experimental and practice training has also increased significantly. When compared to the base year (1993) they increased by 11% in 1994, 24% in 1995 and 51% in 1996. These figures provide strong evidence that the project has improved the quality of services provided by the centers and has enhanced their flexibility and relevance to support changing labor market demands.

(v) All five project-financed studies were successfully completed and their recommendations were implemented as scheduled. Their findings and recommendations led to significant policy reforms that are still underway. The recommendations also led to better planning for the delivery of vocational education services, vocational education facilities expansion, and program resource allocation. They also supported enhanced linkages between schools and employers, improved quality and supply of teachers, and more efficient operation of the joint practice facilities.

(vi) The implementation of the Sixth (VI) Curriculum Reform was also successful, and this effort led to improved curricula and the revision of the standard equipment list for the VHSs. The new standard equipment list has been expanded and is now more relevant to the expected outputs of the VHS programs.

Sustainability

(vii) The policy paper produced under Loan 3693-KO titled " Policy and Actions Program" outlined a number of innovative and far-reaching policy reforms which support the Government's efforts to sustain the gains that were derived from the project. Through project-financed studies, the Government has been able to identify clearly and begin to address the major issues in the subsector. Associated with this effort, it has also clearly identified the needs in the VHS system. Through its support-all policy, which includes both private or public schools, there is now a strong commitment of resources to enhance the capacity of the VHSs to meet the growing needs of the labor market. Throughout the life of the project, the Government has provided adequate counterpart funds including those required for consumables and operations and maintenance (O&M). Furthermore, for the most part, VHS equipment has been effectively utilized. There is reason to assume that these policies and strongly institutionalized practices will continue and that the potential for sustainability is strong.

Bank Group Performance

(viii) Bank performance was generally satisfactory in the preparation of this project. Previous Bank-financed projects in the technical and vocational education gave a clear understanding of sector-related policy issues, and therefore, reduced the number of staff weeks required for project design, processing and implementation.

(ix) Bank supervision totaled about 21.5 staff weeks. This amount of time commitment is relatively low by Bank standards. The low coefficient was due to a Bank decision to field single missions to supervise all of the education projects at the same time (about 5 projects). This allowed for significant efficiency gains over the 'single mission - single project' approach. These gains, in turn, brought forth significant cost savings and low supervision coefficients. It is also noteworthy to mention that the supervision effort for one of the projects (Loan 3694-KO) in this grouping was audited by Quality Assurance Group (QAG) and was rated as highly satisfactory. It was also selected for the Bank's 1998 Award for Supervision Excellence. This award is directly relevant as both projects (Loans 3694-KO and 3469-KO) were supervised in the same way and with the same mission team.

Borrower Performance

(x) Borrower performance during project preparation was also highly satisfactory. The efficient coordination by MOE of the 15 Offices of Education was commendable. Also, the smooth processing of procurement by the experienced officers at SAROK, the national procurement agency, led to the less than average processing time and low Bank staff input. Counterpart funds for both investment and recurrent expenditures for the project were generously provided by the participating vocational schools and the Government. There was no shortage of funds during the life of the project.

(xi) The early delay in the initiation of the two studies was primarily due to the change of government. When problems became apparent, MOE quickly addressed the issue and a revised schedule was agreed upon with the Bank. Better procurement planning was also achieved through the decentralization of the annual procurement plan. The decentralization process began in the previous project, the Vocational Education Project (Loan 3314-KO). The transfer of responsibility from central to local governments has been smooth and without any substantial difficulties. Procurement processes have been highly successful. This was due, in large part, to the highly experienced procurement division of the SAROK. With the exception of the initial delays discussed above (para. ii), no major difficulties were encountered during the project years.

Summary of Findings, Future Operations and Key Lessons Learned

(xii). Although the project was rated highly satisfactory, it should be noted that this project did not have an appropriate set of monitorable performance indicators. [1]/ The project design was straight forward, including only policy work (five studies) and the provision of equipment to the VHSs. The two project components (studies and equipment provision) were combined to encourage and support major reforms in a wide variety of areas including: curricula, teacher training, instructional methods, introduction of new technologies and course offerings, and better linkages with industry and enhanced student placement (better trained graduates and more relevant job placements). The

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[1] / This project was prepared before monitorable indicators were mandated by Bank policy.

project may be characterized by its simplicity and efficiency. With perhaps this single exception, there were no major lessons to be learned from this project.

(xiii). Korea graduated from borrower status in June 1995. In 1998, due to the financial crisis in the region, the Government asked for some additional Bank investment for structural adjustment.

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PART I: PROJECT IMPLEMENTATION ASSESSMENT

A. PROJECT OBJECTIVES

1. Over the past decade, there has been a rapid introduction of new technologies in almost all of the industrial sectors in the country. The Ministry of Education, in the early 1990s, recognized this trend and began to consider ways to make improvements in the internal/external efficiency of vocational training, and to upgrade the program offerings of vocational training institutes to better reflect the emerging technologies sought by the various industrial sectors. This project was designed to support these initiatives.

2. The project has two major objectives: (a) to assist in upgrading the skill training provided in selected vocational high schools (VHSs) to ensure the continued employability of their graduates and to equip the VHSs to adjust more effectively to the changing technologies in the workplace; and (b) to strengthen the VHS system through introducing improvements in the linkages between schools and employers, more effective planning, improved staffing arrangements in the schools and a more efficient operation of joint practice facilities.

Sectoral Development Objectives

3. The competitiveness and industrial growth of any nation is always coupled to the effective and sustained development of human resources, in particular, skilled workers. GOK fully understands this reality and has placed a high priority on the development of its capacity to produce large quantities of skilled workers for employment in industries with rapidly changing technologies. In particular, the MOE has used this project to support its efforts to strengthen the VHSs, its primary service provider for vocational education and training. Similar efforts are also being made by other training service providers at all levels, both public and private. There is also a major effort underway to strengthen and increase enrollments in science and technology programs in the universities, especially at the graduate level.

Policy Issues

4. The Government has made a number of policy decisions to maximize the employment of graduates, as well as responding to the rapidly changing technology of the workplace. The findings of the five studies financed by the Government under this project are being implemented to strengthen the development of the VHS system (see Table 7), and to increase the relevance of the vocational training programs to the workplace.

Evaluation of Objectives

5. A review of the outputs from the project suggests that, without exception, all of the project's objectives were met or exceeded. The Government continues to support its overall economic and industrialization policies through complementary human resource development strategies that include major efforts to raise the quality and effectiveness of public and private vocational education and training. The previous project (Vocational Education Project (Loan 3314-KO)), focused on initial inputs to improve the subsector's internal efficiency. This project was designed to implement more advanced strategies which included major policy changes and the decentralization of VHSs.

B. ACHIEVEMENT OF PROJECT OBJECTIVES

6. The project met its overall objectives and its main achievements include:

(a) The provision rate of experimental and practical training equipment in the whole vocational high schools in 1993 was only 45.7%. Policy reforms and project financing allowed this rate to increase to 59.9% in 1997. Of this about 3.2% was covered by investments from the Loan. Schools were better equipped with up-to-date specialized equipment that are relevant to the changing technology in the workplace. As a result, the average employment rate of the graduates from the participating VHSs during the project years has reached an average of about 85%, and in some schools, such as communication and graphic designing schools, almost 100%.

(b) Procurement management was decentralized from MOE to the local Offices of Education. This has resulted in better procurement planning and relevance to employers and individual training needs, as well as raising the quality of instruction. With the help of the experienced procurement division of SAROK, equipment procurement processing has been efficient and on schedule, although the procurement lead time remains too long. This characteristic is found in other Bank-financed projects in Korea.

(c) The establishment of the Joint Practice Centers (JPC) under the Loan 3468-KO has been recognized as successful. The up-to-date equipment provided by this Loan has allowed for a continued increase in the annual equipment utilization rate. The growth in the equipment utilization rate is as follows: 11% in 1994; 29% in 1995; and 58% in 1996 as compared to the base year of 1993. Progress review missions have noted that the JPCs, almost uniformly, have an impressive system of management and equipment maintenance. It was also noted that, throughout the system, there were no budget shortages for consumables and operational costs during the life of the project. The enrollments in the joint practice centers have increased steadily over the project years: 3% in 1994; 33% in 1995; and 64% in 1996. The amount of time programmed for experimental and practice training has also been increasing on an annual basis: 11% in 1994; 24% in 1995; and 51% in 1996. From an internal efficiency perspective, the above figures represent indicators of improvement.

(d) Due to the change of government, two of the five studies were delayed and conducted on a revised schedule agreed upon with the Bank. All five studies were financed by the Government and were successfully completed before the Closing Date of the project. Their findings and recommendations have been utilized to improve planning and operations of the VHSs and the JPCSs. Policy reform has also been used to support improvements in: the inventory and replacement of old equipment; expansion of facilities; curriculum reform; raising the quality of vocational course teachers; better resource allocation mechanism for consumables and O&M; better linkages between schools and local employers; and the relevance of vocational education to labor market needs.

(e) The implementation of the VI Curriculum Reform for the VHSs has led to the revision of the standard equipment list. This process has supported the replacement of obsolete equipment with up-to-date, new equipment and was linked with the objectives of the project.

C. IMPLEMENTATION RECORD AND MAJOR FACTORS AFFECTING THE PROJECT

Implementation Record

7. The implementation progress was highly satisfactory. The overall responsibility for project implementation was under the management of MOE. The three National Technical High Schools were directly selected by the MOE. The provincial Offices of Education (OE) had the direct responsibility of selecting participating schools according to agreed upon criteria.[2/]

8. For the most part, the management of procurement was also the responsibility of the OEs. They sent their equipment procurement requests (types and quantities of equipment) directly to the Office of Supply, Republic of Korea (OSROK), later renamed the Supply Administration, Republic of Korea (SAROK). SAROK is the Government's Central Procurement Agency and is both experienced and efficient. SAROK sought permits from the appropriate authorities for the importation of the various equipment items and initiated the procurement process. All procurement procedures were in compliance with Bank procurement guidelines. Over 95% of the specialized equipment was procured through ICB.

9. As mentioned earlier, there were two difficulties during the first project year. In the first, there was a delay of two of the five studies to be implemented by the project. In the second, during the first year of the project, there was slow disbursement. This was due to the Government's pressure to use the previous project (Ln. 3314-KO) funds first. However, both of these difficulties proved to be minor and did not adversely affect the

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[2/] With the approval of the Bank, some funds were transferred to support other selected VHSs when several agricultural high schools were closed at the beginning of the project year.

overall implementation of the project. There were no time or cost overruns. The actual disbursement was US$ 29,036,627.31 million or about 96.8% of the loan amount.

10. Audit reports were submitted on schedule throughout the implementation period. All three legal covenants were in full compliance.

Major Factors Affecting the Project

11. There were no major problems affecting the project.

Consulting Services

12. Local consultants were employed to carry out the five studies and were funded from the national budget. Their performance was highly satisfactory, and their recommendations were considered relevant. Significant efforts are continuing to ensure the effective utilization of the findings of the studies which aim to improve both education management and the quality of the VHS system.

D. PROJECT SUSTAINABILITY

13. Throughout the project years the Government made adequate provision for both investment and recurrent costs, such as consumables and O&M expenditures in addition to equipment transportation and installation costs. Out of the increased training equipment provision rate of 59.9% in 1997, only 3.2% was provided by the Loan, the Government contribution was quite substantial. GOK not only remains focused and attentive to the overall development needs of the VHS system, GOK has a clear understanding of the current issues and needs in the VHS system. One of the five studies under this project concentrated on developing an effective resource allocation mechanism for consumables and O&M costs. In addition, there is a strong sign of the Government's commitment to the VHS system through its "support-all" policy to private as well as public schools. The policy paper "Policy and Action Program" of the Science and Technical Education Project (Loan 3693-KO) outlined a number of innovative and far-reaching policy reforms that were the direct result of the five studies financed by the Government under this project. All of the above indications from the GOK strongly suggest that the development objectives of the project will be sustained for years to come.

E. BANK GROUP PERFORMANCE

14. Bank performance was satisfactory throughout the project. The project design is straight forward and the development objectives were designed to serve as a continuation of the efforts during the previous project (Vocational Education Project (Ln. 3314-KO)). They remained focused on the policy issues and VHS needs, therefore Bank staff time spent on preparation and processing to the Board were at a minimum. Annual procurement plans were submitted by the OEs and were agreed upon quickly and on time. Bank supervision work was thorough, including visits to all 15 OEs and sample visits to several VHSs, checking all required reviews of procurement and disbursement documents. Because of the efficiency gains from the mission being able to review several projects during each visit to the country, the supervision costs were kept at a minimum by Bank standards (21.5 weeks). Bank-Borrower relations remained highly satisfactory throughout the implementation period of the project.

F. BORROWER PERFORMANCE

15. The Borrower performance during project preparation was highly satisfactory. The Borrower had ample experience preparing similar projects (such as the Vocational Education Project (Ln. 3314-KO)).

16. The Borrower performance during the implementation stage was also highly satisfactory, despite the earlier delay of the two studies and the slow disbursements at the beginning (para.9). The decentralization process which included the shifting of implementation responsibilities from the central level to the provincial level was smooth and effective. The Provincial Offices of Education (OEs) were also efficient in selecting vocational schools for participation in the project. They also handled well their respective responsibilities for procurement. With the help of the experienced procurement agency, SAROK, every project-related equipment procurement activity was carried out according to agreed upon schedules. The slight delay of the two studies and the slow disbursement at the earlier stage did not adversely affect the project development objectives.

G. ASSESSMENT OF OUTCOME

17. The development objectives of the project were successfully achieved. These objectives were extended objectives of Loan 3314-KO, upgrading the quality of skill training in selected VHSs and strengthening the VHS system. With the achievement mentioned in the above para. 6, there is every reason to regard that the project's outcomes as positive and that future Government commitments towards the VHS system will be continued.

H. FUTURE OPERATION

18. After Korea's graduation from the borrower status in June 1995, there was no expectation of any future Bank operations in Korea. However, due to the recent financial crisis in the East Asia Region, the Government has asked for some structural adjustment loans.

I. KEY LESSONS LEARNED

19. The project design was straight forward, and given the efficient performance of the project implementation agencies, there was no major lesson to be learned.

PART II : STATISTICAL INFORMATION

Table 1: Summary of Assessments

A. Achievement of Objectives	Substantial (✓)	Partial (✓)	Negligible (✓)	Not applicable (✓)
Macro Policies	☐	☐	☐	☒
Sector Policies	☒	☐	☐	☐
Financial Objectives	☒	☐	☐	☐
Institutional Development	☒	☐	☐	☐
Physical Objectives	☒	☐	☐	☐
Poverty Reduction	☐	☐	☐	☒
Gender Issues	☐	☐	☐	☒
Other Social Objectives	☐	☐	☐	☒
Environmental Objectives	☐	☐	☐	☒
Public Sector Management	☐	☒	☐	☐
Other - Private Sector Development	☐	☐	☐	☒

B. Project Sustainability	Likely (✓)	Unlikely (✓)	Uncertain (✓)
	☒	☐	☐

(Continued)

C. Bank Performance	Highly satisfactory (✓)	Satisfactory (✓)	Deficient (✓)
Identification	☒	☐	☐
Preparation	☒	☐	☐
Appraisal	☒	☐	☐
Supervision	☒	☐	☐

D. Borrower Performance	Highly satisfactory (✓)	Satisfactory (✓)	Deficient (✓)
Preparation	☒	☐	☐
Implementation	☒	☐	☐
Covenant Compliance	☒	☐	☐
Operation (if applicable)	☒	☐	☐

E. Assessment of Outcome	Highly satisfactory (✓)	Satisfactory (✓)	Unsatisfactory (✓)	Highly unsatisfactory (✓)
	☒	☐	☐	☐

TABLE 2: Related Bank Loans/Credits

Loan/credit title	Purpose	Year of approval	Status
Preceding operations			
1. First Education (Cr. 151-KO)	Expansion of vocational high schools, junior technical colleges and teacher training	1969	Completed 09/76
2. Second Education (Ln. 906/Cr. 394-KO)	Improvements of vocational high schools, junior technical colleges and science, engineering and education colleges	1973	Completed 12/79
3. Third Education (Ln. 1096-KO)	Expansion and quality improvement in vocational high schools, junior colleges and vocational training institutes (VTIs)	1975	Completed 11/81
4. Vocational Training (Ln. 1474-KO)	Further expansion of VTIs and expansion and improvement of instructor training	1978	Completed 06/83
5. Sector Program on Higher Technical Education (Ln. 1800-KO)	Improving technical colleges and colleges of engineering and management through supply of equipment, staff development, manpower planning, equipment maintenance and academic accreditation	1980	Completed 02/86
6. Program for Science and Technology Education (Ln. 2427-KO)	Raising quality of science and technology education to standards required by a more skill- and knowledge-intensive industrial system through planned policy and institutional change	1984	Completed 06/89
7. Technology Advancement (Ln. 3037-KO)	Strengthening the development of SMIs in Technology-intensive sectors, improving the quality of education in a center of excellence in science and engineering education and enhancing the capacity of selected R&D institutions to provide technical support for SMIs.	1989	Completed 12/31/93
8. Second Technology Advancement (Ln. 3202-KO)	Improving the research capacity of one leading graduate school in science and engineering and enhancing R&D capacities in the areas of biotechnology, basic and industrial standards, and energy and	1990	Completed 06/30/94

	resource utilization		
9. Science and Technology Research (Ln. 3203-KO)	Enhancing basic research programs in selected universities in priority fields in science and technology and improving science teacher training	1990	Completed 12/31/95
10. Vocational Education (Ln. 3314-KO)	Upgrading the skill training provided in selected vocational high schools meeting the increasing complex skill requirements of industry, commerce, agriculture and fisheries	1991	Completed 06/30/96
11. Third Technology Advancement (Ln. 3315-KO)	Improving the quality of research programs for developing advanced technologies, increasing opportunity for joint basic science research activities through common research facilities; and enhancing the development and application of industrial standards	1991	Completed 06/30/94
12. Science Education and Libraries Computerization (Ln. 3468-KO)	Raising the quality of science programs in secondary schools and universities and establishing interlibrary network system to enhance the access of information to students, faculty and researchers	1992	Completed 12/31/97
Following operations			
13. Environmental Research and Education (Ln. 3612-KO)	Upgrading the capacity of selected agricultural and veterinary colleges to undertake research into key environmental problems, reinforcing the environmental aspects of basic science programs in the colleges and establishing appropriate arrangements for improving environmental research and training program	1993	To be completed 12/31/98
14. Science and Technical Education (Ln. 3693-KO)	Improving science and technical education and research through implementation of an agreed policies and actions program and the provision of specialized equipment	1994	To be completed 12/31/99
15. Environmental Technology Development (Ln. 3694-KO)	Strengthening: (a) selected national research institutes to identify and adequately address environmental issues and to undertake environmental R&D activities; and (b) the Ministry of Environment's policy and planning role	1994	To be completed 09/30/98

Table 3: Project Timetable

Steps in Project Cycle	Date Planned	Date Actual/ Latest Estimate
Identification (Executive Project Summary)	03/91	03/03-03/14/91
Preparation	07/91	07/21-08/10/91
Appraisal	11/11/91	11/10-11/27/91
Negotiations	01/92	03/16/92
Board Presentation	03/26/92	05/12/92
Signing	6/92	06/19/92
Effectiveness	09/92	09/09/92
Project Completion	06/30/97	12/31/97[1/]
Loan Closing	12/31/97	12/31/97
Last Disbursement	04/30/98	12/03/97
Cancellation of Remaining Funds	04/30/98	04/30/98

1/ Source: MOE submission dated 01/26/98.

Table 4: Loan/Credit Disbursements: Cumulative, Estimated and Actual

(US$ million)

Cumulative Disbursements	FY93	FY94	FY95	FY96	FY97	FY98
Appraisal Estimate	2.0	12.0	22.0	28.0	29.5	30.0
Actual	2.0	2.7	10.9	22.0	28.6	29.2
Actual as % of Estimate	6%	9%	36%	73%	95%	97%

Date of Final Disbursement - December 3, 1997

Table 5: Key Indicators for Project Implementation

Key Implementation Indicators in the SAR/President's Report

		In 1992 estimated	By 1998 actual
(a)	Loan proceeds by components (in million) [1/]		
	Equipment for Technical Schools	$16.3	$19.9
	Equipment for Agricultural Schools	$08.4	$04.9
	Equipment for Commercial Schools	$05.3	$05.2
	Total	$30.0	$30.0
(b)	Studies	5	5 (all completed)

1/ Expenditures on studies are financed by the Government of Korea.

Table 6: Key Indicators for Project Operation

Not Applicable

Note: Project Operation was satisfactory in past education projects in Korea. ***No operation indicators were considered necessary.***

Table 7: Studies Included in Project

Study Titles	Status	Recommendations	Implementations
1. Improve operation of Joint Practice Centers (JPCs)	Completed	(a) Educational effect is to be maximized through instruction to groups divided by individual ability of students under module programs; (b) Educational production is raised through developing educational materials, audio-visual teaching, etc.; (c) Extended training period in the joint training center (10 - 13 days); (d) Expansion of facilities and replacing obsolete ones; and (e) Retraining of teachers in the joint practice centers and improving their conditions of work.	(a) Module-type textbook is being developed as part of the program "2+1 system of the technical high schools"; (b) Educational effect is to be raised through increased supply of ultramodern media developed by educational technology - subsidize establishing multimedia in VHSs; (c) The centers are being expanded according to educational plans of local Offices of Education and new centers will also be expanded; (d) Old items of equipment are replaced by new ones and expansion of facilities being supported - experimental and practice equipment is being expanded and old items are being replaced; and (e) In-service training is conducted according to plans established by local Offices of Education and schools - the training is conducted according to plans of JPCs.
2. Improve supply and quality of vocational course teachers	Completed	(a) Flexibility is kept in guidelines for eligibility of teacher's qualification in employment; (b) Persons from industries are to be involved as teachers of	(a) It is being implemented according to "ways to establish a new vocational education system" (Feb. 9, '96) prepared by the Presidential Commission for Reform of Education System; (b) Implementations for

		vocational subjects; (c) Expansion of the double qualification system for teachers; and (d) Introduction of circuit teacher system.	employing qualified teachers, medium level employees in the related industries are invited as teachers: (i) The qualification system of teachers is to be reformed; (ii) Persons from the related industries are to be invited as part-time teachers, circuit-teachers, teachers working in the related industry and in the school at the same time, and practice training teachers; and (iii) To raise quality of vocational subject teachers, they are dispatched to industries - implementation of a new system to dispatch teachers to industries for a semester for training.
3. Improve linkage between employers and VHS.	Completed	(a) Strengthening practical education in the related fields; (b) Elastic timing of the practical training in the field - during vacations or divided training by several times; (c) Dispatching official to the related industry for taking charge of site-training; (d) Benefits of taxes to industries participating in the educational-industrial cooperation; (e) Strengthened lectures and practical training through invitations of persons in industries; (d) Joint work on	(a) It is being implemented according to "ways to establish a new vocational education system" prepared by the Presidential Commission for Reform of Education System; (b) Implementation: (i) Adjusting the Standard Equipment Lists; (ii) Consultation organization to substantiate field training. (Consulting body for vocational education and training). Beneficial insurance of industrial disaster, incentive of industries to participate in the training through expanding limits on paying expenses of practical field training, giving elasticity to timing of field training; (iii) Expanding opportunity for

		developing curricula between schools and industries through job analyses; (e) Providing guidance and information of job-opening through strengthened linkage between schools and industries; and (f) Shared roles in vocational training between schools and industries - schools concentrate on basic technology and industries provide applied one.	persons of industries to participate in reforming curricula; and (iv) Establishing linking and cooperative system between schools, industries, and vocational training centers, etc.
4. Develop effective mechanism for planning future expansion and structural change in VHS system	Completed	(a) Strengthened cooperation among Government organizations in administration of vocational education; (b) Strengthened linkage system between Government administrative agencies and research institutes; (c) Strengthened cooperation in the Ministry of Education; (d) Seeking for systematic ways to draw quality students to vocational high schools: (i) investment to be increased in vocational high schools; and (ii) priority to be given when graduates from vocational high schools	(a) Being implemented according to "ways to establish new vocational education system" prepared by the Presidential Commission for Reform of Education System; (b) Implementation: (i) expanding opportunity in higher education for graduates from vocational high schools; and (ii) investment is increased for substantiation of vocational education in VHSs.

		advance to the same field universities.	
5. Develop effective planning resource allocation mechanism for consumables and O & M	Completed	(a) Expanded support for expense of experimental and practice training is necessary - only one third of the amount requested as the expense for experimental and practice training per class is being supported; (b) Matters to be improved on assessing and disbursing of the school operating expenses - the school operating expenses are allocated according to certain standard and disbursed. Schools are deciding and spending their own expenses. There are no plans, budgetary requests, or requests for experimental and practice training expenses.	(a) The supporting expenses are being increased through the decision of the amount for experimental and practice training is under the jurisdiction of the supervisors of local offices of education; (b) According to the budgetary and accounting law and the law for local education autonomy, the central Government allocates the education expenses t the local offices of education in lump sum and they take budgetary processes under their own authorities - as part of the educational reform, steering committees are organized by school, and the school's autonomous right is being expanded. They are also guided to reflect opinions in the school in budgetary matters of school expenses by the unit of school.

Table 8A: Project Costs

	Appraisal Estimate (US$M)			Actual/Latest Estimate(US$M)/1		
Item	Local Costs	Foreign Costs	Total	Local Costs	Foreign Costs	Total
1. Equipment	-	34.5	34.5	-	34.5	34.5
2. Equipment transportation and installation	1.9	0.2	2.1	1.9	0.2	2.1
3. Operations and maintenance	5.2	0.6	5.8	5.2	0.6	5.8
4. Consumable materials	5.2	0.6	5.8	5.2	0.6	5.8
5. Consultants	0.2	-	0.2	0.2	-	0.2
6. TOTAL	12.5	35.9	48.4	12.5	35.9	48.4

/1 The Government's submission dated January 26, 1998, provided no information on the actual costs.

Table 8B: Project Financing

	Appraisal Estimate (US$M)			Actual/Latest Estimate(US$M)/1		
Source	Local Costs	Foreign Costs	Total	Local Costs	Foreign Costs	Total
IBRD	-	30.0	30.0	-	30.0	30.0
Domestic Contribution	12.5	5.9	18.4	12.5	5.9	18.4
TOTAL	12.5	35.9	48.4	12.5	35.9	48.4

/1 The Government's submission dated January 26, 1998, provided no information on the actual costs.

Table 9: Economic Costs and Benefits

Not Applicable

Table 10: Status of Legal Covenants

Agreement	Section	Covenant type	Present status	Original fulfillment date	Revised fulfillment date	Description of Covenant	Comments
Ln 3469-KO	3.03	5	C	Undated	NA	Select participating VHS according to agreed criteria	Fulfilled
	3.04	5	C	Undated	NA	In accordance with Action Plan employ consultants for 5 studies with qualifications of employment satisfactory to the Bank; and deliver each of the 5 studies to the Bank for review and comment: and commence implementation of recommendations in form and substance satisfactory to the Bank.	Fulfilled
	4.01	1	C	6/30 of each year		Furnish to the Bank audit reports including separate opinions on SOEs, not later than June 30 of each year	Fulfilled

Notes: (a) Covenant type (only for those used in this table)

5 Management aspects
1 Accounts/audit

(b) Status (only for those used in this table)

C Complied with

Table 11: Compliance with Operational Manual Statements

There was full compliance with applicable Bank Operations Manual statements.

Table 12: Bank Resources: Staff Inputs

Stage of Project Cycle	Planned		Revised		Actual	
	Weeks	US$(000)	Weeks	US$(000)	Weeks	US$(000)
Through Appraisal	-	-	-	-	16.1	49.6
Appraisal	-	-	-	-	3.3	10.0
Negotiations through Board approval	-	-	-	-	1.0	3.0
Supervision	-	-	12.8	39.5	18.0	62.9
Completion	-	-	4.3	11.7	3.5	9.0
TOTAL	-	-	-	-	41.9	134.5

Note: No or incomplete MIS or COS data for the planned or revised in staff-weeks and in dollars.

Table 13: Bank Resources: Missions

Stage of Project Cycle	Month/ Year	Number of Persons	Days in Field	Specialized Staff Skills Represented	Performance Rating		Types of Problems
					Implementation Status	Development Objectives	
Through Appraisal	03/03-03/14/91	2	11	Econ./Tech Educ.			
	07/21-08/10/91	6	60	Econ./ Tech Educ./ Impl. Spec./ Sci. Educ./ Info.Sys. Spec			
Appraisal through Board approval	11/10-27/91 - 05/12/92	5	39	Econ./Tech. Educ./Impl. Sepc./Sci. Educ./ Info Sys. Spec.			
Supervision	06-07/93	2	8	Tech. Educ.	1	1	Political changes in the new Government required reviews on the rationale for implementation of two of the five studies. The earlier disbursement lags due to the Government's rationale to use up the earlier project funds (Ln. 3314-KO).
	10-11/93	1	4	Tech. Educ.	1	1	
	06-07/94	2	8	Tech. Educ.	HS	HS	
	11-12/94	2	6	Tech. Educ.	HS	HS	
	06-07/95	2	6	Tech. Educ.	HS	HS	
	11-12/95	2	8	Tech. Educ.	HS	HS	
	05-06/96	2	6	Tech. Educ.	HS	HS	
	10-11/96	2	8	Tech. Educ.	HS	HS	
	09-10/97	3	3	Tech. Educ./ Ops. Off.	HS	HS	
Completion	09-10/97	3	15	Tech. Educ/ Ops. Off.	HS	HS	

Ratings: 1 - very satisfactory, 2 - satisfactory, HS - highly satisfactory

REPUBLIC OF KOREA
VOCATIONAL SCHOOLS DEVELOPMENT PROJECT
(LOAN 3469-KO)

IBRD Progress Review Mission and Project Completion Mission
September 28 - October 18, 1997

Aide Memoire [1]

1. The IBRD mission[2] visited Korea from September 28, 1997 to October 18, 1997 to review the implementation progress of three World Bank financed projects under Loans 3468-KO, 3469-KO and 3694-KO, and also to reach agreements with the Ministry of Education (MOE) on preparing the Implementation Completion Report (ICR) for Loans 3468-KO and 3469-KO, of which the Closing Dates are December 31, 1997 for both projects. This Aide Memoire is for Loan 3469-KO only. There are separate Aide Memoires for the other two projects.

2. For Loan 3469-KO, the mission visited the Ministry of Finance and Economy (MOFE), MOE, the Supply Administration, Republic of Korea (SAROK), and two vocational high schools at Seoul. Their kind assistance, cooperation and hospitality is deeply appreciated.

Progress Review

3 **Procurement and Disbursement (Annex 1).** The current status of procurement and disbursements is generally satisfactory. Annex 1 summaries the updated procurement and disbursements status for all four MOE projects still under implementation. Disbursements reached $28.8 million or 96% of the loan amount. By Closing Date, December 31, 1997, this may reach $29.4 million or more (98% or higher) An amount of about $0.6 million may be canceled. Procurement reached $29.2 million or 97% of the loan amount.[3] The mission advised MOE to utilize the ***shopping procurement*** procedure, where appropriate, to reduce the procurement lead time (as compared to the use of the ICB procedure). The mission also advised MOE to make use of the ***direct payment to suppliers*** disbursement procedure instead of the other two, ***replenishment of the special account*** and ***special commitment***. The use of the ***special commitment procedure*** takes a much longer time and there may be less than adequate funds remaining in the special account due to the ongoing Bank recovery procedure which occurs during the last few months of the loan period. These procedures (***shopping procurement*** procedure and ***direct payment to supplier*** disbursement procedure) should be particularly useful if MOE is planning to fully disburse the $30.0 million loan proceeds. Also, at this final stage of project

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1 This Aide Memoire is subject to review and modification by Bank management.

2 The mission was comprised of Messrs./Ms. Robert L. McGough, Task Leader, Carol Ball, Operations Analyst, EASED, and Sing Zak Sung, Consultant.

3 This figure is 1% higher than the 96% for disbursements. This is the reason that payments have not yet been made for some signed contracts.

implementation, there should be some degree of fungibility between funds in different categories in Schedule 1 of the Loan Agreement, as it would be undesirable to amend the Loan Agreement for minor deviations in Schedule 1 at a time near the Closing Date.

4. **Project Related Documentation**. The Special Account for this project is well managed. A sample review of the supporting vouchers for about 25% of the line entries into the Statement of Expenditures (SOEs) during the review period (May to October, 1997) revealed no irregularities. A review of the bid evaluation reports at SAROK for 100% of the 18 contracts awarded during this review period also revealed no irregularities.

5. **Covenant Compliance**. All covenants are in full compliance including the submission to the Bank of the audit report for Korea FY1996 together with a separate opinion on SOEs before June 30, 1997. The mission reminded MOE that the submission to the Bank of the audit report for Korea FY1997 together with a separate opinion on SOEs would be necessary before June 30, 1998 as there are disbursements from this loan in 1997.

Project Completion and ICR[4] Preparation

6. **Project Closing Date**. The mission and MOE agreed that this loan will be closed on December 31, 1997 as stipulated in the Loan Agreement. Any unused balance of the loan proceeds would be canceled after the closing of the loan account. The Bank would inform the Ministry of Finance and Economy of the amount of cancellation. An extension of the Closing Date is unnecessary, given the timely and satisfactory implementation of the project. There is no time overrun.

7 **Grace Period**. A four month grace period for disbursements of eligible expenditures after the Closing Date has been requested by MOE. The mission supports this request and will recommend that the Bank agree to the request. The mission explained that expenditures for goods and services delivered after the Closing Date could not be counted as eligible expenditures.

8 **Recovery of Funds in the Special Account**. The Special Account should have a zero balance after the full recovery of funds in the Special Account.

9 **Data Collection for ICR Preparation (Annex 2) and Time Schedule (Annex 3)**. The mission and MOE reached agreement on the data to be collected from the nine provinces and six municipalities in which the Vocational High Schools are operating. Annex 2 gives the details. MOE would consolidate the information and pass it to the Bank. Agreed steps and timing are in Annex 3.

10 MOE also agreed to send to the Bank the following:

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[4] ICR = Implementation Completion Report. The previous name was PCR. Project Completion Report. Annex B, "The Borrower's Evaluation Summary", now in the ICR replaces Part II, "Project Performance from the Borrower's Perspective", in the previous PCR.

(i) Project cost table;
(ii) Project finance table;
(iii) Project components (by provinces and municipalities) starting and completion dates;
(iv) Consolidated of information for Loan 3469-KO;
(v) The impact of the five studies included in the project; and
(vi) A plan for future operations and future policies which may ensure project sustainability.

The time schedule for the preparation of the ICR is outlined in Annex 3.

11. **Major Findings of the Project Completion Mission**. The Government's decentralization policy (by delegating to the nine provinces and six municipalities the responsibility over Vocational High Schools (VHS) under their jurisdiction) succeeded.

- Implementation of the VI Curriculum Reform for VHSs was completed;
- Calculation of provisional rates on equipment became difficult after the above said reform, because the reform included the abolition of standard equipment lists, the denominator of the provisional rate calculation;
- Utilization rates in VHSs are satisfactory;
- Graduates from VHSs can find employment in the industry, and their starting salary is reasonable (additional data will be provided by the Government, see Annex 2 and 3); and
- Additional findings will be provided by the Government (Annex 2 and 3).

CC List

Name	Fax Number
Ministry of Finance and Economy	
Mr. Han, Hoon Deputy Director, Treasury Division Treasury Bureau	82-2-503-9282
Ministry of Education	
Mr. Lee, Ki-Woo Director General Local Education Support Bureau	82-2-736-0906
Mr. Chung Jae Sung Director Local Education Facilities Division	82-2-736-0906
Mr. Hwang, Ji-Hyun Director Higher Education Facilities Division Higher Education Office	82-2-730-6068
Supply Administration, Repubic of Korea	
Mr Lee, Seong-Sil Assistant Director Foreign Procurement Division II	82-2-533-0711

KOREA
Procurement and Disbursement Status in Loan Projects of MOE
(October 1997)

Loan No.		Loan Amount (US$ millions) (A)	Procurement (US$ millions) Requests Sent to OSROK	To Be Sent	Contracts Awarded (B)	Percent of Loan (B/A)	Disbursements (US$ millions) Deposited Into Special Accounts	Percent of Loan	Remarks
3468-KO		50.0			47.2	94%	47.4	95%	Expected to be nearly fully disbursed.
	(a)	30.0	32.3	0	27.9	93%			
		for Basic Science Development							
	(b)	20.0	20.3	0	19.3	97%			
		for Library Computerization							
3469-KO		30.0	29.2	0	29.2	97%	28.8	96%	Expected to have a small amount of loan proceeds ($0.6 million) to be cancelled.
3612-KO /1		60.0					33.2	55%	Improved from 42% of last report.
	(a)	34.7					17.2	50%	
		Colleges of Agri.							
	(b)	13.0					7.3	56%	
		Colleges of Vet.							
	(c)	12.3					8.7	71%	
		NICEM							
3693-KO /1		190.0	158.5	31.5	108.4	57%	104.7	55%	About 4% better than last report.
	(a)	170.0	140.8	29.2	92.6	54%	91.5	54%	
		for MOE							
	(b)	20.0	17.7	2.3	15.8	79%	13.4	67%	
		for KBSI /2							

Source: Latest Status Report

/1 These two projects were not included as projects to be reviewed by this mission, but the disbursement figures were updated.

/2 This portion is not under MOE

ANNEX 2

REPUBLIC OF KOREA

VOCATIONAL SCHOOLS DEVELOPMENT PROJECT
(LOAN 3469-KO)

QUESTIONNAIRE FOR THE PREPARATION OF ICR

A. Table 1: Improvement on Equipment Provisional Rates in VHS System

	Provisional Rate (%)				
Province/ Municipality	1993	1997	Change	Due to Loan	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10					
11					
12					
13					
14					
15					
National Average					

B. Other Recommended Tables (or sentences in Annex 2)

(1) Table on **improvement** in number of practical work/exercises that could be carried out in the VHS system in 1993, before signing of this Loan, as a percentage of the number of expected practical work/exercises according to the VHS curriculum, compared with that in 1997, the year of project completion. The comparison should yield the figure for the "**Change**" column in Table 1 and perhaps also the figure for the next column "**Due to Loan**".

(2) Table on "Utilization Rate". If change is insignificant, the table should be replaced by a sentence(s) in the Annex 2[1] text.

(3) Tables[2] on:

(i) Enrollment increases, staff increases, and student/teacher ratios;
(ii) Internal efficiency changes, if any, as reflected by promotion ratios; and
(iii) External productivity changes, if any, as reflected by percentages of students that obtained jobs, say in 6 months after graduation. Note last sentence in paragraph 2 above.

Note: above tables are optional (to be included, if affecting, or affected by the project).

C. Five Studies:

This is a key component of the Project, although the Loan is focused on the improvement of the equipment provision rate within the respective institutions. The present status of the implementation of the recommendations from the five studies should be clearly outlined in Annex 2:

(i) **Either** in the format of a table with columns showing the objectives or purposes of each study; start and completion dates; major recommendations; and present status of implementation. Comments on the design of the study, its usefulness, execution of the study, strength and weaknesses of the recommendation, problems or issues on the implementation of the recommendations, and needed future actions to be taken by the MOE/Provinces/Municipalities would be useful contributions to the VHS system.

(ii) **Or**, in the format of a written text in Annex 2 for each of the five studies.

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1 Annex 2 is a Borrower's submission to the Bank as the Borrower's contribution to the Implementation Completion Report (ICR), to be included in the ICR unedited if less than 10 pages or summarized by the Bank if more than 10 pages.

2 Tables, if provided, should be by Provinces/Municipalities and National Averages, see Table 1.

KOREA
LOAN 3469-KO

ICR Preparation Table

Bank Side		MOE Side	
Step Name	**Date**	**Step Name**	**Date**
Project Completion Mission	**Held already in Sept./Oct.97**	**Data Collection**	**10/18/97 - 12/18/97**

(a) Time Schedule - Steps and Dates

		Documents & Tables to reach Bank	by 01/30/98
ICR Drafting	01/30/98 - 03/05/98	Preparation of Evaluation Summary	10/18/97 - 03/05/98
		Evaluation Summary to reach Bank	03/16/98
Draft ICR to MOE	03/20/98	Comments on Draft ICR	03/31/98 - 04/30/98
Gray Cover ICR Preparation	03/20/98 - 05/15/98		
ICR to Bank's Board	06/30/98		

(b) List of Documents and Tables to be sent to the Bank from MOE

(i) The Evaluation Summary to be annexed to the ICR (see steps 3 and 4)

(ii) Documents and Tables: (see steps 1 and 2)
- Project cost table
- Project finance table
- Project components starting and completion date tables
- Consolidated information for Ln. 3469-KO
- (reference: Annex 2 in Aide Memoire dated October 1997)
- The impact of the five studies included in the project, and plans for future operations and policies that would support project sustainability

(iii) Comments on draft ICR (see step 5)

(c) The Documents to be sent by Bank to MOE

(i) Draft ICR (see Bank side step 3)

(ii) Final ICR (after Bank's Board approval) (see Bank side step 5)

ANNEX B

MINISTYR OF EDUCATION

SEOUL 110-760, REPUBLIC OF KOREA
TEL : (02) 720-4581, FAX : (02) 736-0906

January 26, 1998

MR. Robert L. McGough
Senior Technical Educator
Education Sector Unit
East Asia and Pacific Region
The Worldbank
1818 H Street N.W.
Washinton, D.C. 20433 U.S.A

Dear MR. McGough

Subject :Preparations for ICR Under IBRD Loan NO. 3469-KO

Submission of Preparations for ICR Under IBRD Loan NO. 3469-KO

Yours sincerely

Chung Jae Sung
Director
Local Education Facilities Divison

Encls : Preparations for ICR Under IBRD Loan NO. 3469-KO

Project Implementation Completion Report
(Loan No. 3469-KO)

1. Summary of the Project

The general purpose of the project is to upgrade technical training of the vocational high schools in the technical, commercial and agricultural fields so that their graduates, when employed, can meet skills required in work sites of the above industries, and to help them adapt themselves to their productive and changing technical jobs.

The Loan Agreemenmt for the Vocational Education Project was signed on June 31, 1992 and the project was completed on December 31, 1997.

To appraise achieved purposes of the project, IBRD missions and the related staff of the Ministry of Education, Republic of Korea visited the project schools and checked project papers and found that there was no particular problem in completing the project and the Loan, No. 3469-KO.

There are limitations in presenting objective figures on how much the technical education of the vocational high schools was upgraded during the project period, which would be an evidence of the development of technical education in vocational high schools of the project. We would try, however, to review achievement of the project by presenting numerical data to the possible extent.

2. Introduction of the Loan

In 1960s when the labor-incentive light industries such as spinning, shoes-making, etc. was the economic base for the industrial development, demand for higher skilled workers was rather weak, and the main need at that time was the basic training of the labor force and development of skills. But, comming into the 1970s, the heavy-industries began to develop, and the general industries changed and oriented toward export-expanding ones. Along this trends, demand for skilled workers increased and much concern was gathered on vocational education.

In 1980s, along the development of industries into increasingly technology-incentive production and large quantity export ones, technical factors of them developed more and more complicated, and their changes faster, upgrading of the technical education was more and more emphasized.

For levelling up the quality of training facilities in the selected vocational schools by provision of specialized equipment and complementary investment for their graduates to cope with the increasingly complicated functional demand in the manufacturing, commercial and agricultural fields of the industry, the Korean Government got appropriate agreement from the National Assembly and signed on the related agreement with the World Bank on the loan of USD 30 million on June 19,

1992 for the expansion cost of experimental and practice training equipment in the selected vocational high schools.

3. Selection of Participating school and Allocation of the Loan Fund

The Ministry of Education organized adhoc deliberative groups of related experts for selection of participating schools and equipment items, and made overall allocation of the loan fund among the Offices of Education in the municipal cities and provinces. Final decisions on participating schools and equipment items for investment were made by the Supervisor of each Office of Education.

The allocations of the loan fund by field are shown in <Table 3.1>.

<Table 3.1> Allocations of the Loan Fund

Unit: 1,000$

Offices of Education	Tech. field	Agric. field	Comm'l field	Total
Seoul	2,999		735	3,734
Busan	1,838	30	355	2,223
Daegu	1,020	49	247	1,316
Inchon	837		180	1,017
Kwangju	694	94	108	896
Daejon	992	84	62	1,138
Kyunggi	1,962	666	761	3,389
Kangwon	1,129	503	211	1,843
Choongbuk	1,039	434	262	1,735
Choongnam	933	578	262	1,773
Junbuk	953	434	488	1,875
Junnam	1,504	814	339	2,657
Kyungbuk	1,440	474	457	2,371
Kyungnam	1,991	627	570	3,188
Jaiju	124	148	103	375
Subtotal(15)	19,455	4,935	5,140	29,530
Busan Tech. Mech. H.S.	200			200
Junbuk Tech. Mech. H.S.	175			175
Gumi Tech. Electr. H.S	95			95
Subtotal(3)	470			470
Total(18)	19,925	4,935	5,140	30,000

4. Provision status of the experimental and practice equipment

The participating organizations of the project under the loan, No. 3469-KO for expansion of experimental and practice training equipment in vocational high schools are 15 municipal cities and provinces, and three national technical high schools. Their objectives for participation in the project are to upgrade the quality of their graduates.

The provision rate of the equipment in the whole vocatioval high schools as of December 31, '93 was only 45.7%, but their rate improved very much to 59.9% in cost through implementation of the project. The provision rate of the equipment supplied under the loan covers 3.2% of the total cost of equipment in the whole vocatioval high schools. <Table 4.1>

The project has contributed very much to levelling up the technical education by providing high-cost and advanced equipment under this loan, and it also performed a part in providing large quantity of computers, etc. for education.

<Table 4.1> Provision rates of equipment

Provision rates of equipment					
Offices of Education	1993	1997	Change	Due to Loan (3469-KO)	Remarks
Seoul	47.2	66.3	19.0	1.9	
Busan	39.7	49.5	9.8	2.4	
Daegu	49.7	69.4	19.7	1.9	
Inchon	36.5	40.6	4.0	1.6	
Kwangju	55.8	70.1	15.3	5.5	
Daejon	31.3	54.8	23.5	2.0	
Kyunggi	41.8	59.2	17.4	2.3	
Kangwon	39.6	52.4	12.8	3.8	
Choongbuk	34.4	56.9	22.6	4.3	
Choongnam	58.4	69.5	11.1	4.1	
Junbuk	42.7	56.3	13.6	8.6	
Junnam	50.4	74.4	24.0	5.5	
Kyungbuk	61.9	66.3	4.4	3.3	
Kyungnam	47.9	64.7	16.8	12.0	
Jaiju	47.3	73.0	25.7	2.8	
Subtotal(15)	45.6	59.8	14.2	3.2	
Busan Tech. Mech. H.S.	59.2	69.3	10.1	2.6	
Junbuk Tech. Mech. H.S.	47.9	67.8	19.9	2.7	
Gumi Tech. Electr. H.S	33.7	51.8	18.1	2.9	
Subtotal(3)	49.9	65.1	15.3	2.7	
Total(18)	45.7	59.9	14.2	3.2	

5. Amount of purchased experimental and practice equipment

Total cost of purchased experimental and practice equipment as of December 31, '97 by 3469-KO is reached to USD 28,942,269.29 and the cost per eqipment is reached to USD 2,711

6. Experimental and practice training

6-1. Operation of joint practice centers

Joint practice centers were investigated to review in detail the joint using status of the equipment items procured from the loan in this project. The operative days and trainees of joint training centers for '93 to '96 are in the following <Table 6.1>

<Table 6.1> Operation of joint practice centers

Field	Operative Days of Equip't			Number of Trainees		
	Student	Teacher	Total	Student	Teacher	Total
'93	2,790	515	3,305	21,848	552	22,400
'94	3,062	617	3,679	22,670	461	23,131
'95	3,547	710	4,257	28,947	926	29,873
'96	4,273	949	5,222	35,254	1,485	36,739
Total	13,672	2,791	16,463	108,719	3,424	112,143

6-2. Hours for experiments and practice training

To estimate how much quality of technical education in experimental and practice training has been upgraded after provision of the equipment from the loan in the participating vocational high schools will take quite a long time for observation, and it would also be very difficult.

But, the equipment imported from the loan is being utilized very well for experimental and practice training in the vocational high schools of the project and hours for experimental and practice training in the project schools from 1993 to 1996 is in the <Table 6.2>

<Table 6.2> Hours for experiments and practices

Unit : %

Field	'93 (Base Year)	'94	'95	'96
Tech field	100	110.6	121.1	144.4
Agric field	100	103.2	104.1	103.1
Comm'l field	100	114.3	133.4	173.2
Total	100	111.2	123.7	150.6

6-3. In-service training of teachers in the project schools

In-service training of teachers on the equipment imported from the loan in the project schools was conducted as in the following <Table 5.3>.

<Table 6.3> In-service training of teachers for '94-'96

(unit : person)

Field	Programs for more than 180 hours	Programs for more than 60 hours and less	Programs for less than 60 hours	Total
Tech field	210	399	2,741	3,350
Agric field	-	30	1,165	1,195
Comm'l field	106	240	5,076	5,422
Total	316	669	8,982	9,967

7. Placement of graduates

The status of graduates from the participating schools of the project is in Table 7.1. Their average rate of employment for 1994 to 1996 was more than 85.06%. Such a high rate might have come from the effective technical training in the project schools. Such training is prerogative for adapting themselves to the productive and changing technical jobs for the graduates to meet.

The good results are judged to have come from the good use of the experimental and practice training items of equipment supplied and installed during the

project.

<Table 7.1> Placement of graduates('94-'96)

(unit : person)

Graduates, Total(A) (=B+C+D+E)	Licences of Graduates (B)	Rate Of "Licences of Graduates" (B/A)	Employed (C)	Rate of employment (C/A)	Not employed (D)	Recruited to military service (E)
609,392	481,515	79.02	518,337	85.06	88,260	2,795

8. Implementation of Recommendations Proposed by the Five Study Reports on the VHS System under the IBRD Loan, No.3469-KO

Study Tiles	Recommendations	Implementations
1.Improve operation of Joint Practice Centers	○ Educational effect is to be maximized through instruction to students grouped and divided by indivisual ability under module programs.	○ Module-type teaching material was developed as a link of the program "2 · 1 system of technical high school". -For raising adaptability of graduates in the work sites from vocational high schools, and for establishing educational-industrial cooperation system, the 2 · 1 system has been introduced in the vocational high school system from '94 and it is being operated on trial ('94-'98). · Pilot schools were operated in'97 : 12,922 students in 90 schools were trained in 1,254 industrial work-sites. · Teaching materials developed by professors : 133 books by '97 and 164 in total were developed.
	○ Educational production is raised through developing educational materials, audiovisual teaching, etc.	○ Multi-media rooms and advanced educational equipment were provided in VHSs. -Work-sites oriented vocational training for students has been provided to students, and management and operational training of information for VHS teachers · Multi-media was established by '97 : 402 rooms (52% of the planned total) · Advanced educational equipment was established by '97 : 14.6% in 2,570 rooms · Three vocational education S/W programs were developed and distributed

Study Tiles	Recommendations	Implementations
	○ Expansion of facilities and replacing obsolete ones ○ Extended training period in the joint training center (10 days-13 days) ○ Retraining of teachers in the joint practice centers and improving their conditions of work.	○ Joint Practice Centers attached to VHS have been established and being operated. -High cost advanced items equipment of automatic operation were installed in a central VHS among locally grouped 5-6 VHSs and effectiveness is being raised by common use of them. · 28 centers for the above purpose were established by '97, and they are to be increased to 31 by '99. · Those centers are to be used for more expanded practice training of students and for in-service training of teachers during school vocations.
2.Improve supply and quality of vocational cource teachers	○ Flexibilty is kept in guidelines for eligibility of teacher's qualification in employment ○ Persons from industries are to be invited as teachers of vocational subjects. ○ Expansion of the double qualification system for teachers. ○ Introduction of circuit teacher system. ○ Establishing a new majoring course for vocational education in graduate schools.	○ Usage of industrial manpower as vocational subject teachers -Schools are allowed to use qualified vocational subject teachers from industries as honored instructors or lecturers (Law of Elementary and Secondary Education was revised on December 13, '97) ○ More teachers to get training in the industrial work site through educational-industrial cooperation.
3.Improve operation of Joint Practice Centers	○ The Standard Equipment Lists are to be adjusted for providing new items of equipment.	○ The standard of facilities and equipment for education of VHSs Was improved. -Each Office of Education is allowed to make its own standard according to changes of local industries and characteristics of VHSs in its district. (The related regulation of the Ministry of Education was abolished on December 31, '96)

Study Tiles	Recommendations	Implementations
	○ Strengthening practical esucation in the related fields. ○ Flexcible timing of the practical training in the field. ○ Dispatching official to the related industry for taking charge of site-training. ○ Benefits of taxes to industries participating in the educational- industrial cooperation. ○ Providing guidance and information of job seeking linkage between schools and industries. ○ Shared roles in vocational training between schools and industries.	○ Conditions of industrial field work was changed -Insurance for VHS students practice working in industrial field was adopted(January 3, '98) -Legal rights are insured for students working in practice in industries and substantial field training is induced. · Organization of committees consisting of teachers and members from industrial firms, working on field training of students, for discussion of practice training. · Regulation of rights and obligations of students working in practice in industrial fields. · Regulation is prepared for defining practice training hours and taking rest in industrial fields, their welfare, redemption for disasters, etc.
	○ Joint work on developing curricula between schools and industries through job analyses.	○ Operational substantiation of the 2 · 1 system of VHSs -"Module-type educational materials (164 books) combined with theory and practice were developed by participation of industrial technologists · Curricula and teaching materials for the 2 · 1 system of VHSs and the 1st class teaching materials were made public (Dec. '97)
	○ Strengthened lectures and practical training through invitations of persons in industries.	○ Technical manpower in industries are to be used as technical subject teachers at the same time, honored teachers or instructors (Law of Elementary and secondary Education) Dec. 13, '97.

Study Tiles	Recommendations	Implementations
4.Develop effective mechanism for planing future expansion and structural change in VHS system	○ Stengthened cooperation among Government organizations in administration of vocational education.	○ "Vocational Education Policy Deliberation Committee" was established and is being operated for establishing coorporational system for vocational education among Government Ministries. The Law for facilitation of Vocational Education and Training was revised on Mar. 27, '97. -Vocational Education and Training Association was established and is being operated in each of municipal cities and provinces.
	○ stronger linkage between administrative agencies and research institutes	○ Korea Development Institute of Vocational Competency was founded under Ministry of Education on Mar. 27, '97 and is being operated. -Study and development of policies and license system for vocational education and training. -Development and distribution of vocational education and training programs.
	○ Strengthened cooperation among bureaus in the Ministry of Education.	○ Reorganization of the Ministry of Education for strengthening of vocational education (July 5, '96) -Industrial Education Coordination Division, Higher Education Office : establishing and coordinating, comprehensive plans for promotion of industrial education -Science and Technology Education Division, Local Education Administration Bureau : establishing and coordinating basic plans on production of scientific and technical manpower at the high school level and below.

Study Tiles	Recommendations	Implementations
	○ Seeking for systematic ways to draw quality students to vocational high schools. -Investment to be increased in vocational high schools. -Priority to be given when graduates from vocational high schools advance to the same field universities.	○ Increased scholarship for Technical High School students -Gradual increase of scholarships for students in technical high school to induce more quality students advance to them. · '97 : 43% of the students got scholarships(50% in 2000) ○ Expanded beneficial sellection for graduates of VHS in advancing to the same field of undergraduate course.
	○ Investment to be increased in vocational high schools.	○ Supporting modernization of educational facilities and equipment in VHSs. -Raising provision rate of experimental and practice training equipment and replacing ofsolete equipment for vocational education appropriate to advanced induosrial fields (The provision rate of experimental and practice training equipment in '97 : 63%) -Joint Practice Centers are to be established and operated locally in technical high schools with high cost advanced items of equipment(28 centers were establised by '97) -Multimedia operating rooms that could use recently developed domestic and foreign learing materials (402 rooms by '97) -Advanced educational equipment to be supplied to VHSs (2,570 classes in '97) -Vocational education S/W to be developed and supplied (three CD-ROMs in '97)

Study Tiles	Recommendations	Implementations
5.Develop effective planning resource allocation mechanism for consumables and O&M	○ Expanded support for expense of experimental and practice training is necessary.	○ The cost of experimental and practice training supported from Offices of Education in municipal provinces and cities to VHSs is to be increased to the adequate level for such educational activities in VHSs, For this purpose, the related budget will support capital investment such as costs of experimental and practice training equipment, etc.
	○ Matters to be improved on assessing and disbursing of the school operating expenses.	○ The preparation and implementation of the budget for the special account of educational cost for municipal provinces and cities are in the authority of the Superintendents of Offices of Educations. Therefore, they will be requested to support budgetary requests from VHSs.

9. Benefits of the PrjectI.

In 1980s, industries required more and more technology-incentive production, increased exportation, and their technical factors demanded more complicated and fast changes.

To upgrde quality of technical education for students of vocational high schools, the Korean Government has introduced the IBRD loan of USD 30 million for financing expansion of experimental and practice training equipment for vocational high schools.

The Government financed domestic fund of 1.6 million Won(Service fee for purchase of equipment, Service costs for equipment importation & transportation, Taxes and public charges, Miscellaneous) to the loan amount, and provided 10,647 items of eqaipment in total for 5 years from 1991 to 1995 to 18 institutions such as municipal and provincial Offices of Education and national technical high schools for their utilization. The provision of equipment by the project has raised provision rates of educational equipment and contributced very much to grading up the quality of experimental and practice training education in Korea.

The loan and the relevant vocational education project have contributed very much to the technical education in vocational high schools in Korea. It could be summarized as follows :

① The provision rate of experimemtal and practice training equipment in vocational high schools was raised from 45.7% on December 31, '93, to 59.9% as of January 1, '97.

② Operation of joint practice centers has improved, and the number of trainees increased from 22,400 in 1993 to 36,739 in 1996, showing annual increases.

③ Rate of experimental and practice training also increased from 100('93; Base Year) to 150.6('96), contributing to raising quality of technical education.

④ Operational trainings were provided to teacher trainees along importation of the high-cost and advanced equipment and computer-related equipment. Their number of trainees, for 1993 to 1996, was 9,967 including 8,982 trainees for programs of 60 hours or less.

The IBRD loan, No. 3469-KO and its relevant educational project for vocational training are recognized to have contributed much to the development of sciences and technology in Korea in addition to the benelits above-cited.